EXHIBIT A

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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

GOOGLE LLC, Plaintiff, v. SONOS, INC., Defendant.	CASE NO. 3:20-cv-06754-WHA Related to CASE NO. 3:21-cv-07559-WHA

OPENING EXPERT REPORT OF SAMRAT BHATTACHARJEE REGARDING INVALIDITY OF U.S. PATENT NOS. 10,779,033 AND 9,967,615 AND OTHER ISSUES

HIGHLY CONFIDENTIAL AEO AND SOURCE CODE MATERIALS

3. Playing Back Cloud-Hosted Playlists

218. In addition to allowing users to play user-created playlists, the prior art Tungsten/Nexus Q was also able to playback playlists that were generated and stored in the cloud, for example album playlists (e.g., AC/DC Back in Black) or a [redacted] a list of recommended songs generated by a server.

219. The prior art Tungsten/NexusQ was able to playback album playlists that were stored in the cloud. For instance, the music application in the Tungsten/NexusQ system could play cloud-hosted playlists, such as the AC/DC Back in Black album. As the Tungsten patent explains, these album playlists are stored in the cloud and available for a user to play on their mobile or Tungsten device. *See* IX.D; *see also* https://www.youtube.com/watch?v=WT0o1truK9w&t=428s at 2:25-2:40 ("he has gone into the Music Play Music application… we can see his playlists… all stored in the cloud").

220. The prior art Tungsten/NexusQ also allowed users to request that the cloud servers generate and provide a playlist of songs that were related to, for instance, specific tracks or albums, which was called a [redacted] *See* [redacted][9], lines 49-56, 83, 139, 160, 213; *see also id.*, line 49 ("Activity which will create an instant mix based on a given artist/album/track"). [redacted]

[redacted]

49 [redacted]

50 [redacted]

51 [redacted]

[redacted]

4. [redacted]

221. [redacted]

[redacted]

52 [redacted]

53 [redacted]

54 [redacted]

55 [redacted]

228.

66

67

68

69

70

233. [redacted]

234. [redacted]

235. [redacted]

236. [redacted]

[76] Throughout my report I refer to [redacted]

[77] [redacted]

[redacted]

237. [redacted]

238. [redacted]

239. [redacted]

[78] [redacted]

[79] [redacted]

A. The Asserted Claims Of The '033 Patent Are Obvious Variations Of Claim 13 Of The '615 Patent

263. I understand that the Court has agreed with my prior opinion and held that Claim 13 of the '615 patent is both invalid in view of the YouTube Remote prior art and YouTube Remote patent. The Court's order supports my opinion that the asserted claims of the '033 patent are invalid because the differences in claim language between the asserted claims of the '033 patent and Claim 13 of the '615 patent relate to obvious variations of the invention in Claim 13 of the '615 patent.

264. For example, the table below shows the differences in claim language between Claim 13 of the '615 patent and a representative independent claim (Claim 12) of the '033 patent. The primary difference is that Claim 12 of the '033 patent recites a "remote playback queue" rather than the "local playback queue" recited in Claim 13 of the '615 patent. As I have mentioned above, Sonos is reading the term "remote playback queue" to encompass a cloud queue and a list of recommended videos provided by a cloud server. At least under Sonos's interpretation, the recitation of a "remote playback queue" rather than a "local playback queue" is an obvious variation. Indeed, I show in this report that [redacted]

’033 Patent, Claim 12	’615 Patent, Claim 13
12.1 A non-transitory computer-readable medium having stored thereon program instructions that, when executed by at least one processor, cause a computing device to perform functions comprising:	Claim 13 of the ’615 patent discloses substantially the same limitation: “A tangible, non-transitory computer readable storage medium including instructions for execution by a processor, the instructions, when executed, cause a control device to implement a method comprising.” In particular, the “computing device” in the ’033 patent is akin to the “control device” in the ’615 patent.
12.2 operating in a first mode in which the computing device is configured for playback of a remote playback queue provided by a	Claim 13 of the ’615 patent discloses substantially the same limitation. For example, Claim 13 discloses a mode in which a “control device” (akin to the

'033 Patent, Claim 12	'615 Patent, Claim 13
cloud-based computing system associated with a cloud-based media service;	computing device) is configured for playback media on the control device. In particular, Claim 13 recites "causing a graphical interface to display a control interface including one or more transport controls to control playback by the control device." In other words, the patent discloses that the control device is configured for playback and that it includes transport control to control that playback. Claim 13 does not expressly recite that its control device is configured for playback of a "remote playback queue provided by a cloud-based computing system associated with a cloud-based media service." However, I understand that Sonos has interpreted this term as encompassing playback of a cloud queue or a list of recommended videos provided by a cloud server. *See* Section VI.B. At least under Sonos's interpretation, the "remote playback queue" fails to distinguish the '033 patent from the prior art. For instance, the prior art YTR application was able to playback a cloud-hosted "party queue" and a list of recommended videos provided by the cloud server on the mobile device. *See* YTR application, Limitation 1.4. Similarly, the Tungsten/NexusQ discloses the ability to playback a cloud-hosted album (e.g., AC/DC Back in Black) and a list of recommended videos provided by a cloud server on the mobile device ([redacted]). *See* Tungsten/NexusQ, Limitation 1.4. Accordingly, the recitation of a remote playback queue does not distinguish the '033 patent from the prior art.
12.3 while operating in the first mode, displaying a representation of one or more playback devices in a media playback system that are each i) communicatively coupled to the computing device over a data network and ii)	Claim 13 of the '615 patent includes substantially the same limitation. For example, Claim 13 discloses that when playing back media on the control device, the control device may identify one or more playback device in the media playback system

'033 Patent, Claim 12	'615 Patent, Claim 13
available to accept playback responsibility for the remote playback queue;	that are coupled to the control device over a data network (namely a local area network) and available to accept transfer of playback responsibility: "after connecting to a local area network via a network interface, identifying playback devices connected to the local area network." Claim 13 also recites that the graphical interface of the control device displays a representation of the one or more playback devices that are identified: "causing the graphical interface to display a selectable option for transferring playback from the control device."
12.4 while displaying the representation of the one or more playback devices, receiving user input indicating a selection of at least one given playback device from the one or more playback devices;	Claim 13 of the '615 patent includes substantially the same limitation. Claim 13 also discloses that the control device may receive a user input indicating a selection of a playback device: "detecting a set of inputs to transfer playback from the control device to a particular playback device, wherein the set of inputs comprises: (i) a selection of the selectable option for transferring playback from the control device and (ii) a selection of the particular playback device from the identified playback devices connected to the local area network."
12.5 based on receiving the user input, transmitting an instruction for the at least one given playback device to take over responsibility for playback of the remote playback queue from the computing device, wherein the instruction configures the at least one given playback device to (i) communicate with the cloud-based computing system in order to obtain data identifying a next one or more media items that are in the remote playback queue, (ii) use the obtained data to	Claim 13 of the '615 patent includes substantially the same limitation. For example, Claim 13 discloses "after detecting the set of inputs to transfer playback from the control device to the particular playback device, causing playback to be transferred from the control device to the particular playback device." While Claim 13 does not expressly recite that "causing playback to be transferred from the control

'033 Patent, Claim 12	'615 Patent, Claim 13
retrieve at least one media item in the remote playback queue from the cloud-based media service; and (iii) play back the retrieved at least one media item;	device to the particular playback device" includes sending "an instruction to cause playback to be transferred to the playback device," a POSITA would have found it obvious to effect playback transfer by transmitting an instruction for the at least one given playback device to take over responsibility for playback of the remote playback queue from the computing device. Indeed, a POSITA would understand that the playback device must receive an instruction to take over playback responsibility and that the instruction could be sent by the "computing device" or by some other device besides the computing device. Given the finite number of identified, predictable solutions, a POSITA would have found both options to be obvious. Claim 13 also teaches that receiving an instruction to transfer playback configured the playback device to communicate with a cloud-based computing system to retrieve data (e.g., resource locators) for playing back at least one media item: "wherein transferring playback from the control device to the particular playback device comprises: (a) causing one or more first cloud servers to add multimedia content to a local playback queue on the particular playback device, wherein adding the multimedia content to the local playback queue comprises the one or more first cloud servers adding, to the local playback queue, one or more resource locators corresponding to respective locations of the multimedia content at one or more second cloud servers of a streaming content service." Claim 13 also recited that the retrieved data (e.g., resource locators) were used to retrieve at least one media item in the remote playback queue from the cloud based media service and to play back that retrieved media item: "wherein the particular playback device playing back the multimedia content comprises the particular playback device retrieving the multimedia content from one or more second

'033 Patent, Claim 12	'615 Patent, Claim 13
	cloud servers of a streaming content service and playing back the retrieved multimedia content." Claim 13 differs from the '033 patent in that it requires a "local playback queue," rather a remote playback queue. I understand that Sonos has interpreted this limitation as being satisfied by playback of a cloud queue. At least under Sonos's interpretation, the "remote playback queue" fails to distinguish the '033 patent from the prior art. For instance, [redacted], Limitation 1.7. Similarly, [redacted], Limitation 1.7. Accordingly, the recitation of a remote playback queue does not distinguish the '033 patent from the prior art.
12.6 detecting an indication that playback responsibility for the remote playback queue has been successfully transferred from the computing device to the at least one given playback device; and after detecting the indication, transitioning from i) the first mode in which the computing device is configured for playback of the remote playback queue to ii) a second mode in which the computing device is configured to control the at least one given playback device's playback of the remote playback queue and the computing device is no longer configured for playback of the remote playback queue.	Claim 13 of the '615 patent includes substantially the same limitation. For example, claim 13 recites that the control device stops playback of the media on the control device and the system transitions into a mode where the control device controls playback device of the media on the control device: "(b) causing playback at the control device to be stopped; and (c) modifying the one or more transport controls of the control interface to control playback by the playback device; and causing the particular playback device to play back the multimedia content, wherein the particular playback device playing back the multimedia content comprises the particular playback device retrieving the multimedia content from one or more second cloud servers of a streaming content service

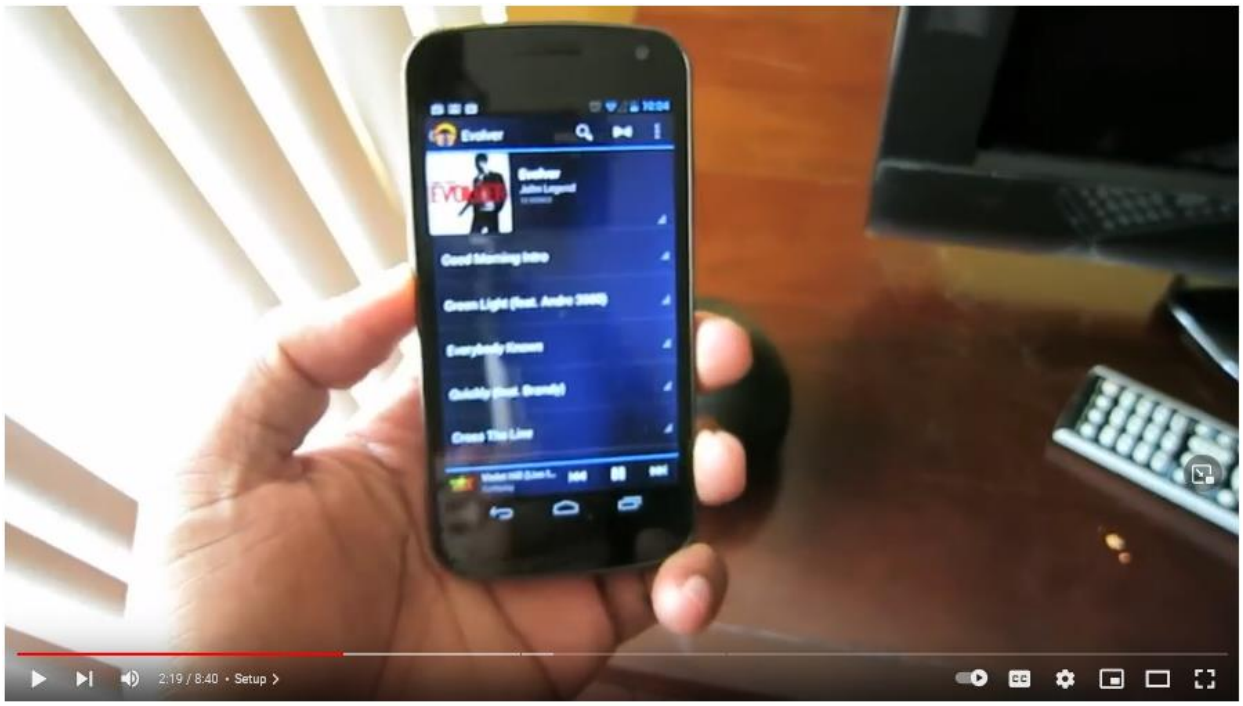
'033 Patent, Claim 12	'615 Patent, Claim 13
	and playing back the retrieved multimedia content." While Claim 13 recites that transferring playback causes playback at the control device to stop and then modifies the transport control on the control device to control playback on the playback device, it does not expressly recite that this occurs after "detecting an indication that playback responsibility for the remote playback queue has been successfully transferred from the computing device to the at least one given playback device." However, this distinction is trivial. A POSITA would understand that implementing the detection and updating of the transport controls can be sequenced or done concurrently, both of which were straightforward design choices. Indeed, sequencing the operation so that the detection occurs before the transport control changes was obvious to try because it involved choosing from a finite number of identified, predicable solutions—namely, (1) modifying the transport controls prior to receiving the claimed indication, (2) modifying the transport controls concurrently with the claimed indication, and (3) updating the transport controls after the claimed indication—with a reasonable expectation of success. Thus, it would have at least been obvious to sequence the operations such that it detects the claimed indication and then modifies the transport controls so that they control playback on the playback device.

B. The Asserted Claims Are Invalid Based On The YouTube Remote System Alone Or In View Of The YouTube Remote Patent

265. In my opinion, the YouTube Remote ("YTR") system anticipates the asserted claims of the '033 patent. To the extent the YTR system alone is deemed not to anticipate the asserted claims, then the asserted claims are at least obvious based on the YTR system in view of one or more of the general knowledge of a POSITA and U.S. Patent No. 9,490,998 ("'998 patent").

could operate in a first mode wherein music was played back on the mobile device. *See* Section IX.C (Google's Project Tungsten)

497. The screenshot below is from a video showing a smartphone running the Google Play Music application to play media locally on the smartphone and then transfer playback to a NexusQ device:



https://www.youtube.com/watch?v=iFnA0kC_lw8 at 2:10-2:40.

498. In addition to allowing users to play user-created playlists, the mobile device permitted users to request and playback playlists that were generated and stored in the cloud.

499. [redacted]

[redacted]

(v) *Limitation 1.5: "while operating in the first mode, displaying a representation of one or more playback devices in a media playback system that are each i) communicatively coupled to the computing device over a data network and ii) available to accept playback responsibility for the remote playback queue;"*

(vi) *Limitation 1.6: "while displaying the representation of the one or more playback devices, receiving user input indicating a selection of at least one given playback device from the one or more playback devices"*

500. [redacted]

[redacted]

121 [redacted]

122 [redacted]

[redacted]

508. Additionally, I understand that Sonos is reading the term "remote playback queue" to encompass a cloud-hosted queue and a list of recommended videos provided to a mobile device by a server in the cloud. *See* Section VI (Claim Construction).

509. I understand that claims are to be interpreted and applied in the same way for both infringement and invalidity. Thus, at least under Sonos's interpretation of the claims, the prior art Tungsten/NexusQ system discloses and renders obvious this limitation when a user transfers playback of a list of recommended tracks provided by the cloud servers [redacted]) or other cloud-hosted playlists (such as the AC/DC Back in Black album). I discuss both scenarios below.

510. [redacted]

511. [redacted]

[redacted]

512. [redacted]

513. [redacted]

514. [redacted]

515. [redacted]

124 [redacted]

125 [redacted]

126 [redacted]

[redacted]

516. [redacted]

517. [redacted]

524. [redacted]

[redacted]

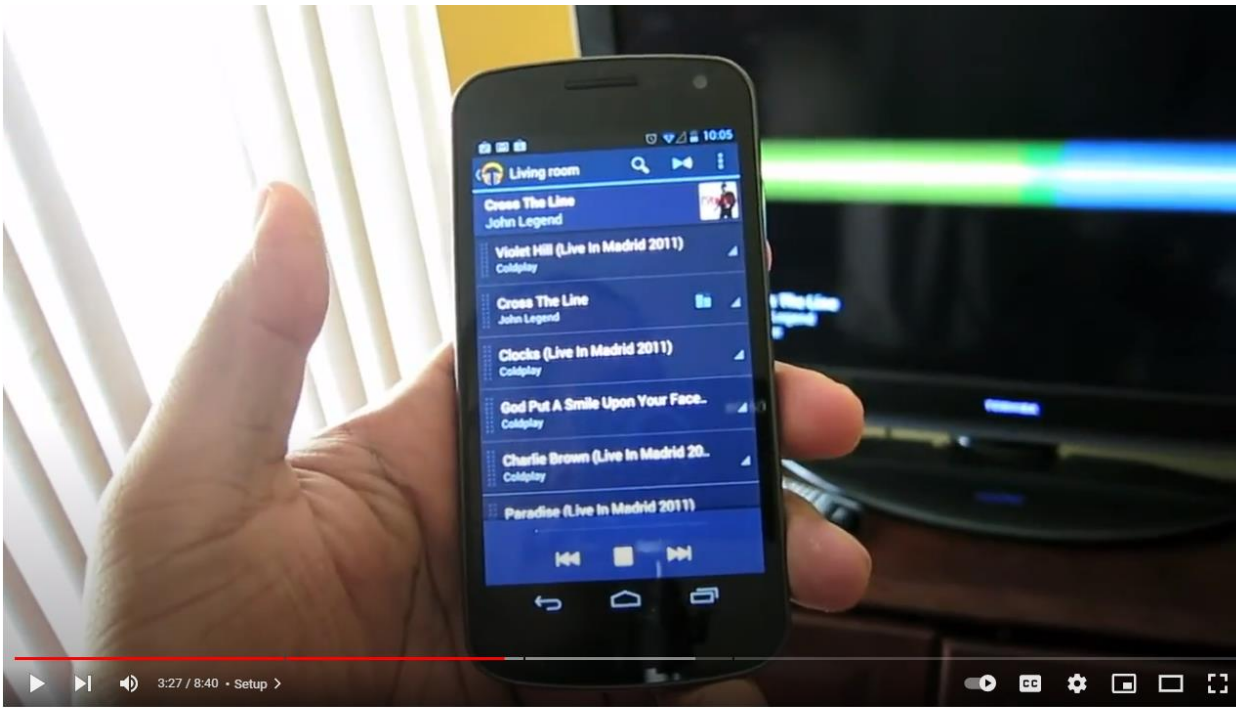
[redacted]

526. The screenshot below is from a video showing a smartphone running the Google Play Music application to play media locally on the smartphone and then upon a user input, transferring playback to a NexusQ device. It further shows that the streaming icon in the top right switches from gray to blue when playback responsibility is transferred:

to be a controller for the playing of the music"), ¶34 ("the device 102 may be used as a remote control, such as to fast-forward, rewind, or skip through songs in the playlist."); ¶¶44-45 ("For example, if a user submits an identifier for a particular property of the AC/DC album Back in Black, the system 200 may correlate that album to an internal identification number that AC/DC's record label has linked to the album. That internal identification number may in turn be used to provide the user with streaming access to the corresponding copies of each of the songs on the Back in Black album.").

532. Further, to the extent Sonos argues that the claimed indication is not detected prior to transitioning to the second mode in which the transport controls of the Music application are configured to control playback on the Tungsten, this limitation would have at least been obvious. A POSITA would understand that implementing the detection and updating of the UI can be sequenced or done concurrently, both of which were straightforward design choices.

533. **December 2011 Tungsten:** The December 2011 Tungsten also included a mobile device (e.g., a tablet) that operated in a first mode where the mobile device played back a cloud-based playlist (e.g., an album playlist or [redacted] locally, and then transitioned to a second mode in which the mobile device served as a remote control for playback on the NexusQ speakers. As shown in the video cited below, when playback is transferred from the mobile device to the Nexus Q, playback is stopped on the mobile device and the transport controls are modified to control playback on the Nexus Q:



Nexus Q Review - the new media box or just old news?

https://www.youtube.com/watch?v=iFnA0kC_lw8 at 2:08-3:30.

534. [redacted]

[redacted]

545. [redacted]

[redacted]

546. [redacted]

[redacted]

131 [redacted]

[redacted]

764. In my opinion, a non-infringing alternative is for the computing device to continue playback at the computing device after playback has been transferred to the playback device. After transfer occurs, a "set and forget" operation could turn the receiver into a playback device without direct control from the YouTube application on the phone or tablet. A media item would be playing back on the playback device, and the media would also be playing on the phone/tablet. The user could retain control of the Cast-receiver through other means such as Google Assistant or Google Home. Because the playback would not be stopped on the computing device, this alternative does not infringe the Asserted Claims.

765. In my opinion, end users would have found this alternative to be an acceptable alternative. This would thus provide additional functionality that the user may choose to take advantage of or may choose to ignore if they prefer. In fact, users may prefer this method. For instance, if the playback of a video continues on the control device after transferring playback is complete, the user would have the benefit of viewing the video both on their phone and on the television. Moreover, if the user is playing audio and moves to a different room he or she may enjoy the ability to continue listening to music on the mobile device.

766. Based on my education, my experience, the computer science projects I have supervised as a professor, my consulting experience, relevant deposition transcripts, my discussions with the relevant Google engineers and my use of Accused Products, I estimate that

[redacted]

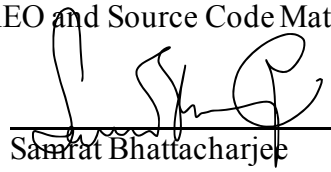
XVIII. RESERVATION OF RIGHTS

837. In the event I am called upon to testify as an expert witness in this case, I may also discuss my own work, teaching, and publications in the field, and knowledge of the state of the art in the relevant time period. I may rely on handbooks, textbooks, technical literature, my own personal experience in the field, and other relevant materials or information to demonstrate the state of the art in the relevant period and the evolution of relevant technologies. I also reserve the right to rely on demonstrative exhibits to help explain the opinions set forth in this report.

838. I reserve the right to modify or supplement my opinions, as well as the basis for my opinions, in light of new positions set forth by Sonos, to the extent Sonos is permitted to advance those positions. This includes positions concerning the scope and interpretation of the asserted claims, infringement allegations, conception, diligence, and reduction to practice, and secondary considerations. It is also my understanding that Sonos may submit an expert report corresponding to this report. I reserve the right to rebut any positions taken in that report.

I, Samrat Bhattacharjee, declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

DATED: November 30, 2022



Samrat Bhattacharjee